Prometheus EOS exporter

Exposing EOS metrics for better monitoring

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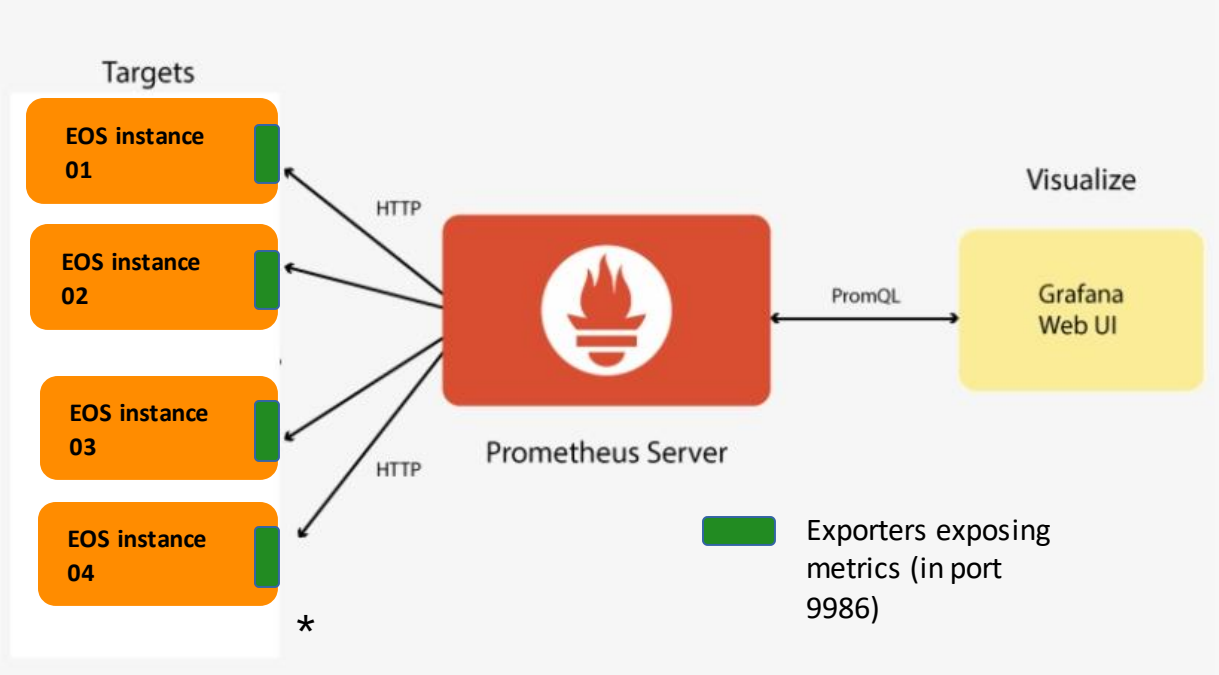
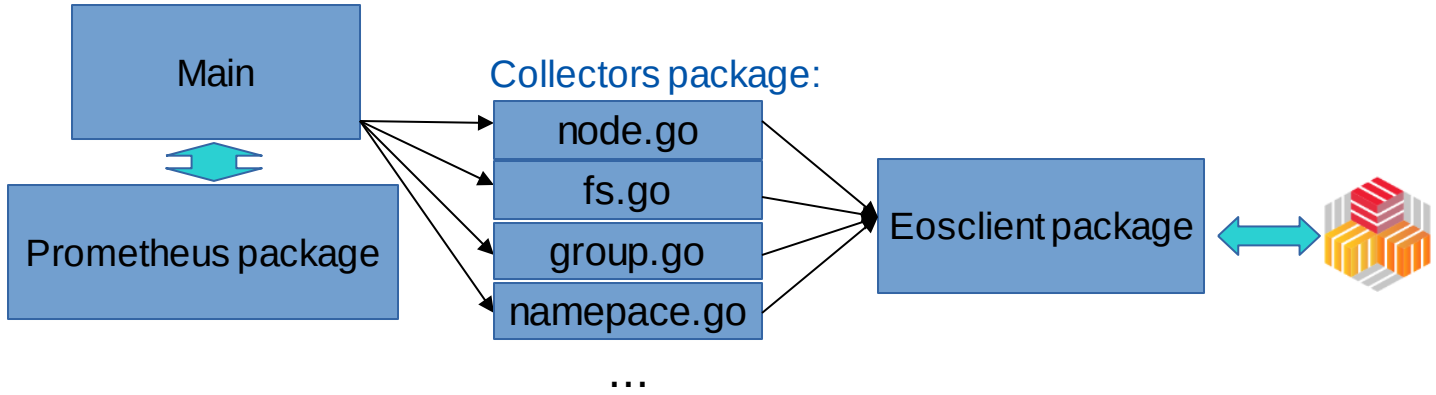
Where does an exporter stand in Prometheus?

- **Prometheus is a modern simple and scalable monitoring system.**
- **Its pull monitoring scheme makes it very popular in cloud systems.**
- **As it can be seen in Prometheus default port allocations, EOS exporter exposes metrics in port 9986 by default.**
- **EOS exporter written in Go.**
- ***(* Don't forget opening the port in the targets)***



Collectors

- **Filesystem, Node, Space, Group and Namespace collectors available, but opened for contributions:**



Node:
Fs:
Group:
Space:
Versions:
Namespace:

```
~]$ #  eos -r 0 0 node ls -m
~]$ #  eos -r 0 0 fs ls -m
~]$ #  eos -r 0 0 group ls -m
~]$ #  eos -r 0 0 space ls -m
~]$ #  eos --json node ls
~]$ #  eos ns stat -a -m
```

(= eos -r 0 0 –b node ls –m –sys)

Collectors (II)

- **Target or endpoints' metrics can be seen through the Prometheus server's web interface**

eos (4/4 up) show less

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://eosinstance-00.cern.ch:9986/metrics	UP	instance="eosinstance-00.cern.ch:9986" job="eos"	15.453s ago	438.800ms	
http://eosinstance-01.cern.ch:9986/metrics	UP	instance="eosinstance-01.cern.ch:9986" job="eos"	1.821s ago	1.28s	
http://eosinstance-02.cern.ch:9986/metrics	UP	instance="eosinstance-02.cern.ch:9986" job="eos"	1.553s ago	910.084ms	
http://eosinstance-03.cern.ch:9986/metrics	UP	instance="eosinspect-03.cern.ch:9986" job="eos"	10.990s ago	842.207ms	

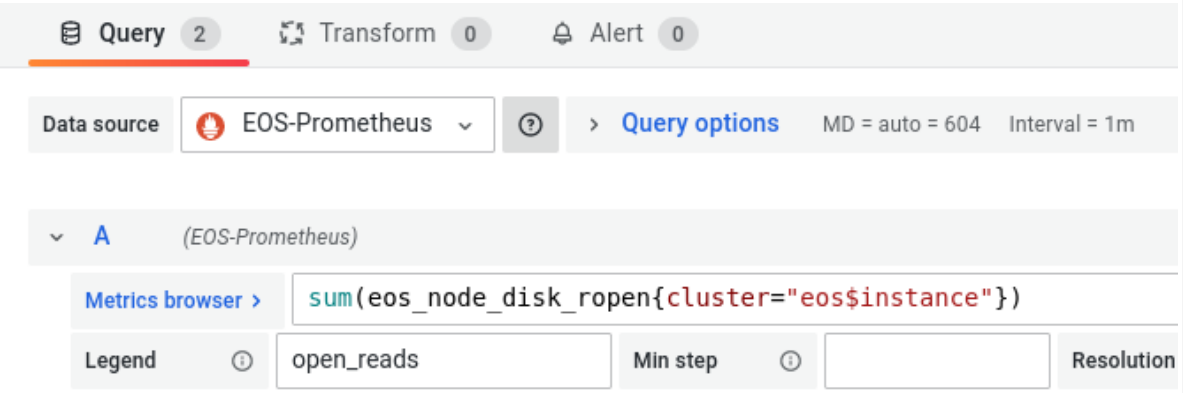
eos_node_threads{instance="eosinstance-02",node="<eos_fst_hostname>.cern.ch",port="1101"} 130

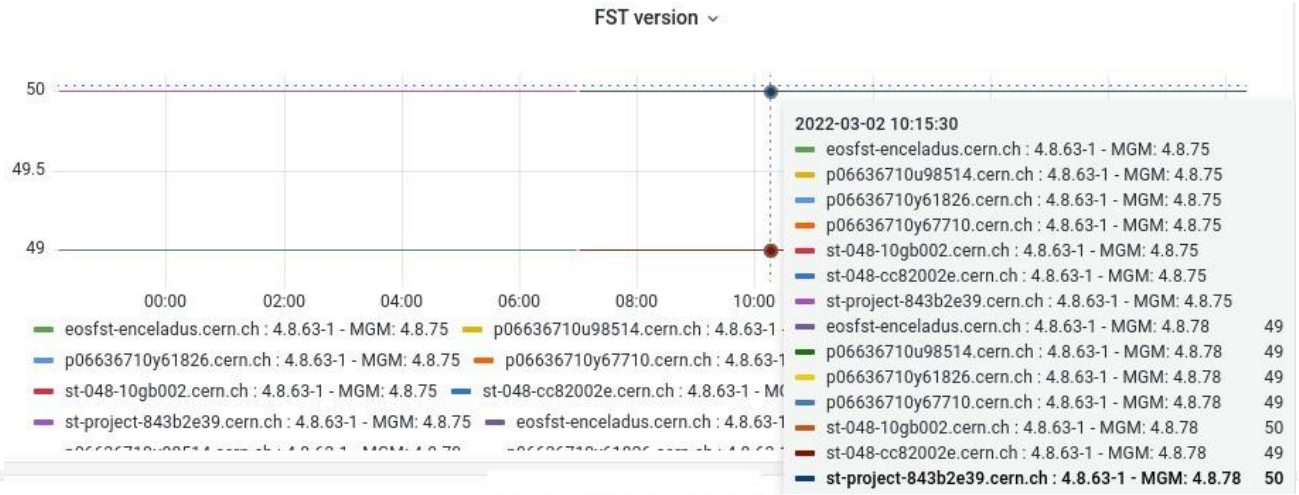
116 metrics exposed:

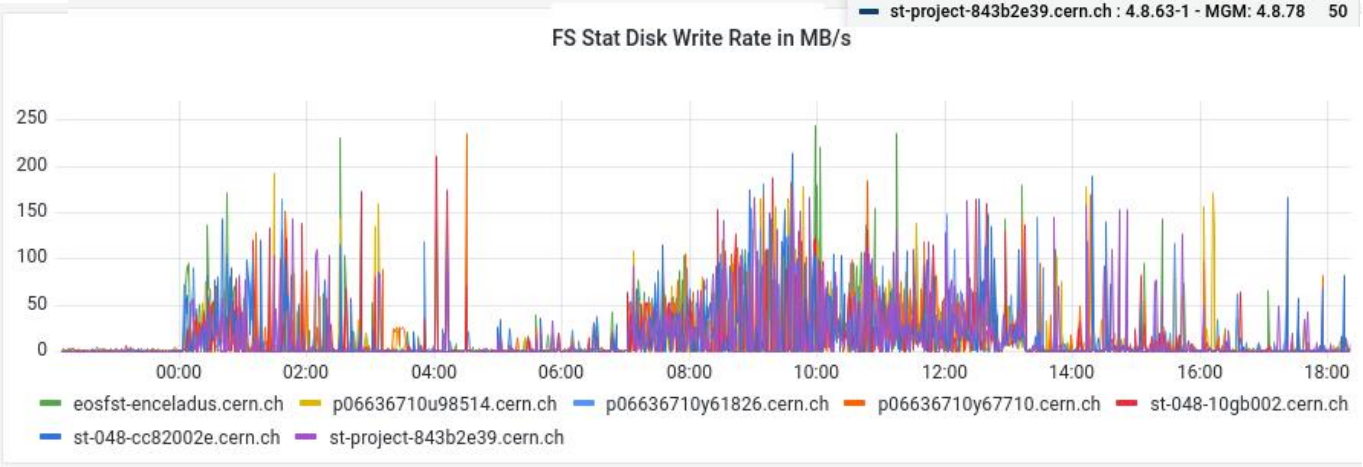
- Node: 10
- Fs: 22
- Space: 25
- Group: 22
- Namespace: 35
- Versions: 2

Visualization

- Selecting the correct data source, all these metrics can be visualized in Grafana:







Visualization (II)

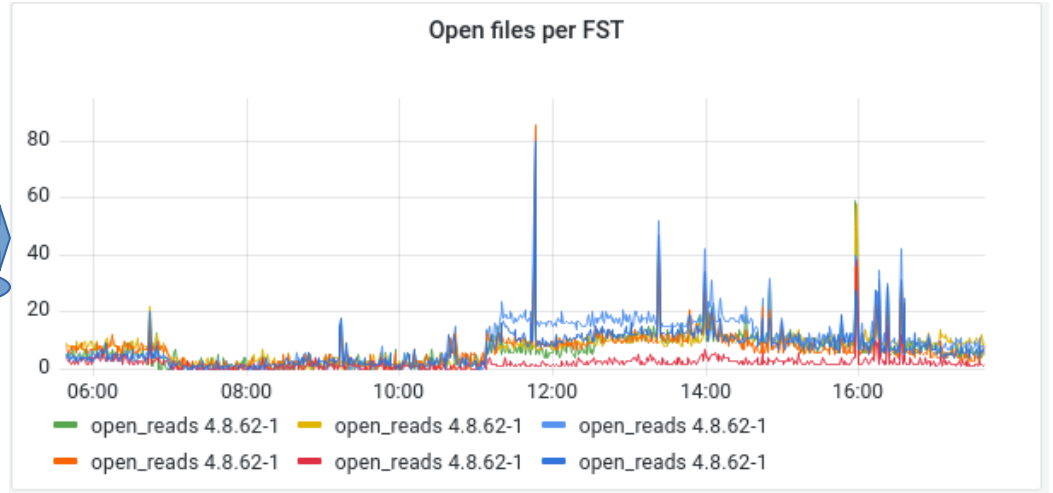
- The Prometheus Query Language (PromQL) allows doing JOIN (among others) queries between different metrics exposed by an exporter:

```
eos_node_disk_ropen
{instance="eosinstance-01",node="eosfst-1234.cern.ch",port="1101"} 726
```

```
sum(eos_node_disk_ropen{instance="eos$instance"} * on(node, port)
group_left(eos_v_fst) eos_versions_total{instance="eos$instance"})
by(eos_v_fst, node)
```

JOIN

```
eos_versions_total
{instance="eosinstance-01", eos_v_fst="4.8.75-1", mgm_version="4.8.78",
node="eosfst-1234.cern.ch", port="1101"} 1
```



Repository layout

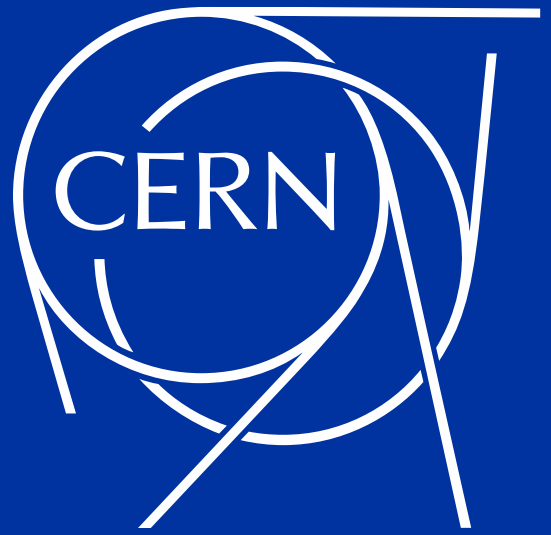
- GitHub repository is the canonical (primary) one within CERN-EOS project: GitHub repo
    - Has tagged-releases, containing the binary
- GitLab repo mirrors the primary one, and is used to generate all the artifacts to be deployed in CERN's EOS instances.

Future vision

- There are a fair amount of metrics exposed already
- Enhance the quality and diversity of the metrics exposed by the EOS exporter for better observability of EOS.

- On the long run, adopt Prometheus as the standard monitoring framework for EOS.

Thank you for your attention!
Time for questions



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